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Office of the Secretary

23 October 1995

MEMORANDUM FOR AFIT/CIRD
ATTN: 2D LT VOELLGER

FROM: SAF/PACC
1690 Air Force Pentagon
Washington DC 20330-1690

SUBJECT: Master's Project

I just received a signed copy of my master's project and am enclosing an unbound copy per AFIT requirements. The disk is part of the project and should be attached to the bound record copy.

You'll receive my transcript directly from the University of South Carolina. That should complete my AFIT responsibilities.

Thanks for your assistance.

ANDREW T. GILROY, Capt, USAF
National Civil Affairs Officer

Attachment:
Master's Project

A PLAN FOR AIR FORCE USE OF THE WORLD WIDE WEB

by

Andrew Thomas Gilroy

Bachelor of Arts
University of Maryland, 1983

Submitted in Partial Fulfillment of the

Requirements for the Degree of Master of Mass Communication

in the College of Journalism and Mass Communications

University of South Carolina

1995

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Introduction

Setting the standard for professional communicators through technology.

Vision of Air Force Public Affairs Technology Strategic Plan[1]

[1]Air Force Public Affairs Strategic Plan, Secretary of the Air Force Office of Public Affairs, March 1995.

Use of the World Wide Web by individuals and organizations of all types is exploding. Unfortunately, in the Air Force, relatively few public affairs offices have established a presence on the Web. Many of the Air Force organizations currently on the Web are not even public affairs offices. This is a mistake on the part of public affairs offices and the Air Force.

Public affairs offices are the Air Force's information tool. Public affairs people know what information can be released, how it should be released and what the policy for releasing information is. Without public affairs involvement in developing and maintaining the Air Force's Web presence, the Air Force can potentially do more damage than good by using the Web to distribute information.

The Web pages currently offered by Air Force organization vary greatly in content and format. Some sites offer valuable information in an appealing fashion while others present information of negligible value in an unappealing way. Clearly, Web expertise ranges from advanced to not at all.

The Air Force needs to act now to remedy this situation. Public Affairs offices need to be involved in Web development, all bases and major organizations should have a Web presence, Web pages should have a predictable consistency, and people developing Web documents need the training to present a good product.

This project will explain the reasoning for the preceding recommendations, then explain how to make them happen. All information presented in this project was gathered or generated by its author, a public affairs officer with more than nine years experience who has been studying the World Wide Web for the past year. The purpose of this project is to influence the Air Force's adoption and use of the Web. The recommendations presented here are easily achievable and will ensure the Air Force and the public get what they need from an Air Force presence on the Web.

The Computer as a Communications Tool

Eschewing personal computers in this day and age is like saying "no thanks" to refrigeration.

Bill Machrone, PC Magazine

Before studying the Web itself, it is useful to study what makes the Web possible: the computer. Originally developed to help mathematicians and scientists, computers have become a major avenue of mass communication. If the inverse relationship between computer price and capability continues at its current pace, computers may become *the* mass communication avenue of choice by the end of this decade.

Growth in the computer industry has been phenomenal. In 1960, 2,000 computers were delivered in the United States.[2] In the first three quarters of 1994, 13,000,000 personal computers had been shipped.[3] Americans spent almost as much for computers ($8 billion) as they did for television sets ($8.3 billion) last year.[4]

Personal computers were first available about twenty years ago. By last year, they were in one of every three American homes.[5] One of every four children and nearly half of all teenagers used a computer at home.[6] Most adults worked with a PC although only one of every ten people over 65 years of age used them.[7] In addition, one in eight Americans had a modem which enabled them to use their computer to communicate with other computers and computer owners, and about half did just that.[8]

A major reason for the growth in the computer market is the rapidly expanding capability of the computer. Today's personal computers are smaller, faster and can store more data than ever before. Semiconductors double in

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[2]"Technology, 1960," *The People's Chronology*, Microsoft Bookshelf '94.
[3]Larry Armstrong, Ira Sager, Kathy Rebello, and Peter Burrows, "Home Computers," *Business Week*, 28 November 1994, p. 91.
[4]Suneel Ratan, "A New Divide Between Haves and Have-Nots?" *Time*, Spring 1995, p. 25.
[5]"One in Three Homes Has a Computer," *Editor & Publisher*, 13 August 1994, p.31.
[6]"One in Three Homes Has a Computer," p.31.
[7]"One in Three Homes Has a Computer," p.31.
[8]"One in Three Homes Has a Computer," p.31.

complexity every 18 months[9] Microprocessors available last year were 550 times as powerful as the first microprocessor developed in 1971 and were as fast as a 1986 IBM 3090 mainframe.[10]. Memory chips available early in the 21st century will make PCs as powerful as a Cray 3 super computer.[11]

Newer home computers are not confined to text-based applications. The CD-ROM is fast becoming a standard feature as computers venture into the multimedia world of stereo sound and video. From 1992 to 1993, the number of multimedia computers purchased by consumers grew from 219,000 to 718,000.[12]

The personal computer's rising capability translates into increased ease of use. Cryptic, sometimes complex, typed commands are a thing of the past with most personal computers. User friendly graphical displays make navigating around a computer just a point and click away.

The easier computers are to use, the more willing people are to buy and use them. In 1985, 22 percent of Americans felt positive about technology, according to G. Richard Thoman, senior vice-president of IBM's Personal Computer Company.[13] This year he expects that number to reach 56 percent, and by 2005 to reach 68 percent,.

Capability and ease of use are not the only reasons people are more willing to buy computers, though. The price of computers has declined significantly both in terms of computing power and unit cost. Computing power is now 10,000 times cheaper than it was 20 years ago.[14] "If the cost of other things had decreased as fast as that of computers has [since the first business computers were sold 50 years

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[9]David C. Churbuck, "Help! My PC Won't Work!" *Forbes*, 13 March 1995, p. 103.
[10]Otis Port, "The Keys to the Future: Hardware: Semiconductors," *Business Week*, 1994 Special Bonus Issue, p. 60.
[11]Port, p. 61.
[12]Catherine Arnst, "Tackling Technophobia," *Business Week*, 1994 Special Bonus Issue, p. 145.
[13]Armstrong et al, p. 91.
[14]Churbuck, p. 103.

ago], you'd be able to pay for both an around-the-world trip and a Rolls Royce with a $5 bill...and receive change!" wrote Charles S. Parker in *Understanding Computers & Information Processing.*[15]

While the cost of a new computer is still too high for many, computers will most likely continue becoming less expensive and, "Ever upgrading 'heat-seekers,' who are constantly searching for the latest equipment, are bound to create a vigorous secondhand market," according to *Time* reporter Suneel Ratan.[16] "Machines that might otherwise be wasted are instead being sold into the used-computer market, where they can be snapped up by the less advantaged in the same way that poorer people buy used cars instead of new ones," she adds.

Politicians are aware of the potential that some people may be left behind the technology curve and appear sensitive--if not yet reactive--to their needs. President Bill Clinton and Vice President Al Gore, "Rode to the White House in part on the promise that they would build the so-called information superhighway and route it through every voter's district--if not to his home," according to *Time*'s Philip Elmer-DeWitt.[17] House of Representatives Speaker Newt Gingrich proposed a tax credit to the poor for the purchase of laptop computers. While computers may not reach television's 98 percent penetration in American homes soon, "It's likely that a majority of homes will have PCs by the end of the century," according to *Business Week.*[18]

Modems, now virtually a standard feature on personal computers, allow computer owners to break the confines of their own computers and explore the offerings of the Internet. Online access is usually not free, however, and some

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[15]Charles S. Parker, *Understanding Computers & Information Processing* (Fort Worth: Dryden Press, 1994), p. 66.
[16]Ratan, p. 26.
[17]Philip Elmer-DeWitt, "Welcome to Cyberspace," *Time*, Spring 1995, p. 6.
[18]Armstrong et al, p. 91.

critics fear that some of the poor who finally do get a computer won't be able to use it to go online. While that is a possibility, it is not a probability. Cost has not deterred 93 percent of American television households from augmenting broadcast television with cable, a videocassette recorder and/or a video game player.[19]

Communicators recognize the potential of a wired society and are using various online means and CD-ROM technology to reach it. March 1995's *Interactive Publishing Alert* reports, "As of February 1995, there were 3,200 newspapers offering some form of interactive services, compared to 2,700 a year ago, 2,000 in 1993, 1,200 in 1992, 450 in 1991, 112 in 1990 and 42 in 1989."[20] *Omni Magazine* is now available only on CD-ROM or online.

Some, like *New York Magazine*, have begun an electronic bulletin board to reach the wired audience. Bulletin boards typically offer much of the information available in the print version of a publication, a lot of local reference information, and an area where subscribers can post their own messages. Although useful as a service, they are not likely to make a publisher rich. One person with 10 years experience running an electronic bulletin board system for magazines explains, "It's a pain in the arse to keep them running. And unless you're Ziff [-Davis Publishing], I don't know how you make money at it."[21]

Organizations like the Air Force are not looking to make money using computers. They feel they need to use computers to keep up with the changing communications environment. In 1991, the commander of the Air Force News Agency wrote the following to Air Force public affairs offices:

> *Computerization of Public Affairs is the future.*
> *This is one boat that you can't afford to miss. The shrinking resource picture demands that we take a hard look at how we do*

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[19]Nancy M. Davis, "CyberFacts," *Presstime*, October 1994, p. 25.
[20]Rosalind Resnick, "In the Spotlight: The Kelsey Group's Sixth Annual Study on Interactive Newspapers," *Interactive Publishing Alert*, March 1995.
[21]Thomas Forbes, "Go It Alone Online," *Folio*, 1 May 1994, p. 95.

business and move quickly to take advantage of technology that is available to us today.

E-mail and bulletin boards on computers are the future, as hard copies become a thing of the past.

Each and every one of the Public Affairs offices must sign up to the technology and acquire the equipment necessary to operate within the fast evolving information area that surrounds us.

Our folks must be trained to use the systems and integrate them into the day to day operations of their jobs.

As the corporate communicators of the Air Force, we must be more aggressive and be the technology trendsetters.[22]

A recent trend of many broadcasters, newspapers and magazines is to establish a presence on the proprietary online services like America Online and Compuserve. These systems are much less work for information providers than an electronic bulletin board and usually offer much more capability. In this arrangement, the information provider supplies the information and the proprietary online service supplies the equipment and technical expertise. The downside for the information provider is the relative lack of control over the presentation of its information and the competition from other resources on the same system. Like electronic bulletin boards, online services have not been wildly lucrative for media agencies.

CD-ROM is another area of much experimentation. Products published on CD-ROM incorporate features present in radio, television and print media. *Newsweek* was the first to produce a multimedia national news product for subscribers,[23] offering a glimpse of the hybrid news product of the interactive future. The technical quality of CDs are not yet comparable to video quality, however, and producing CD-ROMs is not yet as fast as producing a more traditional news product.[24]

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[22]*login: afpan*, (San Antonio: Air Force News Agency, 1991), p. 1.
[23]Todd Oppenheimer, "*Newsweek*'s Voyage Through Cyberspace," *Columbia Journalism Review*, December 1993, p. 34.
[24]Oppenheimer, p. 36.

Another avenue for delivering information to a mass audience through computers, the World Wide Web, is the fastest growing of any of the new technologies. "Every computer company, nearly every publisher, most communications firms, banks, insurance companies and hundreds of mail-order and retail firms are registering their Internet domains and setting up sites on the World Wide Web," according to Elmer-DeWitt.[25]

PC Magazine describes the World Wide Web the following way:

> *The World-Wide Web is a playground of the mind, a place where anyone with the time and inclination can travel the globe, grabbing a portrait of the First Cat during a tour of the virtual White House, listening to digitized songs from cool, obscure bands, or skimming guides to cities the world over. It's also a way for businesses--from newspapers and record houses to high-tech vendors like Microsoft and Sun--to reach out to customers. It doesn't exist in any physical sphere; indeed, the World-Wide Web is redefined every day by the people who use it.*[26]

The World Wide Web is part of the Internet, an anarchistic global network of computer networks growing at a prodigious rate. In 1986 there were only 5,000 computers on the Internet; by 1989 there were 100,000; in mid-1994 there were 2.2 million,[27] and today there are about 4 million.[28] The number of individuals using the Internet is generally believed to be at least ten times that number.

The idea of the Web was conceived at a physics lab in Switzerland in March 1989.[29] By November 1990 the first prototype appeared.[30] The Web makes using the Internet much easier because it handles all the Internet functions that used to be handled separately--FTP, Gopher, Usenet News, WAIS, telnet, and e-

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[25]Elmer-DeWitt, p. 6.
[26]Rick Ayre and Kevin Reichard, "The Web Untangled," *PC Magazine*, 7 Feb 95, p. 173.
[27]Abe Dane, "Understanding and Exploring the Internet," *Popular Mechanics*, April 1995, p. 69.
[28]Susan Fry Bovet, "Guideposts for going on line," *Public Relations Journal*, May 1995, p. 33.
[29]Ayre and Reichard, p. 174.
[30]Ayre and Reichard, p. 174.

mail.[31] Its most impressive feature, however is hypertext, the capability to link to related information simply by clicking on or selecting an object.[32]

By 1993 the first graphical Web browser was introduced, enabling the use of photos and graphics. Web traffic grew by more than 400,000 percent within a year.[33] Earlier this year many commercial online services began offering Web access to their subscribers, a population of 4.7 million people with the equipment and computer expertise to surf the Web.[34] By the year 2000, predicts Forrester Research, Inc., the Web population will be 22 million.[35]

Those who use the Web do so frequently. More than 72 percent use their Web browsers daily.[36] Forty-one percent use the Web between six and 10 hours per week and another 21 percent use their Web browsers between 11 and 20 hours per week.[37]

Summary

Computers have evolved from an expensive tool used almost exclusively for advanced mathmatical or scientific work to an affordable means of basic communication for mainstream Americans. The increasing ease of use and capability of the computer is best demonstrated by the World Wide Web. The Web exists on an international network of computers which allows the computer user to access information from or provide information to other users on the network without the time, space, and geographic limitations inherent in other

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[31]Laura Lemay, *Teach Yourself Web Publising with HTML in a Week*, (Indianapolis: Sams Publishing, 1995) p. 10.
[32]Evan Ramstad, "World Wide Web Snares Audience," *The State*, 27 March 1995, p. 9.
[33]Dane, p. 70.
[34]Cyndee Miller, "Marketers Find It's Hip to be on the Internet," *Marketing News*, 27 Feb 95, p. 2.
[35]Miller, p.2.
[36]"GVU's 3rd WWW Survey Page," Georgia Tech. URL: http://www.cc.gatech.edu/gvu/user_surveys/survey-04-1995.
[37]"GVU's 3rd WWW Survey Page."

means of communication. The next section of this project will identify how and why organizations are using the Web to comm[illegible]icate.

Use of the Web by Organizations

This evolution is being driven by imaginative and inventive thinkers who reason that if communication is desirable, then more and faster communication is wonderful. If communication can be instant, why shouldn't it be instant? If it can contain massive amounts of information, then why shouldn't it contain massive amounts of information? After all, communication and information are the defining elements of the modern world and our concept of the future.

Jack Dale, Editor & Publisher

The attraction to the Web is simple. Like a CD-ROM, it is a multimedia publishing medium. Richard A. Shaffer, principal with Technologic Partners, explains, "The potential is for the Internet to look like television, to sound like radio and to look like magazines."[38] Unlike CD-ROM, Web products are available to an immense worldwide audience as soon as they are produced and placed on a server. *Playboy*'s Web page had over 10,000 visitors from over thirty different countries the first day it was available.[39] "Forty-six calls were from the former Soviet Union, 300 from Sweden," *Playboy*'s director of new media told *Newmedia Magazine*.[40] "Now, this amazed me, because there would be no way that these people would know that *Playboy* had a World Wide Web page," she added. In March, 150,000 people visited NASA's Web page set up specifically for a 15-day Space Shuttle trip.[41]

Computer companies have already begun to accommodate Web travelers. Internet access capability is standard on IBM's OS/2 Warp operating system and operating system giant Microsoft will make Internet access capability standard on its Windows 95 operating system scheduled for release this summer.[42] In one to two years, reports *Business Week*, most software will be Web-capable.[43]

The Web is hot and "Practically everyone that's anyone is there," according to Cyndee Miller, senior staff writer for *Marketing News*.[44] The Web has become less of a choice and more of a requirement for publishers and companies marketing products and services. According to Midori Chan, vice president of creative services at Interse, "Marketers aren't going to have a choice about being on the

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[38]Debra Aho Williamson and Bradley Johnson, "Web Ushers in Next Generation," *Advertising Age*, 29 May 95, p. 13.
[39]Jack Olmsted, "Playboy Opens WWW Emporium," *Newmedia*, November 1994, p. 58.
[40]Olmsted, p. 58.
[41]Ramstad, p. 9.
[42]Verity and Hof, p. 120.
[43]Verity and Hof, p. 122.
[44]Miller, p. 2.

Internet. To not be on the Internet in the '90s is going to be like not having a phone."[45]

Stewart Alsop, editor-in chief of *InfoWorld*, claims, "If you're in the publishing business, you have to have an Internet site--and it doesn't matter what you publish."[46] *Wired Magazine* "got dragged into the Web," reports *The Economist*, "when readers in Singapore, tired of waiting for the latest issue, created their own web-linked version of the magazine."[47] *Advertising Age* reports, "Increasingly, publishers with good ideas are skipping the costs, headaches and risks of tackling the nation's overcrowded newsstands and heading directly into cyberspace."[48] Start-up costs for a Web publication are between $200,000 and $500,000--far less than the minimum $10 million for a similar print publication.[49] Putting an existing print publication on the Web will obviously cost much less. *Magical Blend Magazine* paid less than $2,000 in technical fees to set up on the Web.[50]

That statement will hold true for consumers, too. *Business Week* reports that, "The Internet will soon be so ubiquitous, or "transparent," as experts say, that we'll take it for granted, as we do electrical power or the phone system today...Less and less you will have to make a conscious decision to "get on the Internet," as you do today."[51]

The cost of setting up and maintaining a Web presence can range from $20 per month for space on an Internet provider's server to $10,000 per month.[52] *PC Computing Magazine*'s "High-End Solution" for establishing a Web site from

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[45]Miller, p. 2.
[46]Lorne Manly, "Weaving the World Wide Web," *Folio*, 15 Feb 95, p. 64.
[47]"Webbed Fingers," *The Economist*, 5 Feb 94, p. 86.
[48]Scott Donaton, "Not Your Father's Magazine," *Advertising Age*, 10 Apr 95, p. 18.
[49]Donaton, p. 18.
[50]Manly, p. 65.
[51]John W. Verity and Robert D. Hof, "Planet Internet," *Business Week*, 3 April 1995, p. 118.
[52]Jill H. Ellsworth, "Three Routes to a Web Presence," *PC Magazine*, 16 May 1995, p. 224.

scratch is $18,142, plus $1,800 per month for a communications hookup.[53] The estimate did not include personnel costs.

Organizations can determine the extent of their investment based upon their needs. In return, the Web gives them capabilities most of them could previously not afford: direct access to a worl wide audience, the ability to distribute massive amounts of timely information, and equal footing with every agency in their fields[54]. Distribution and copying budgets no longer have to dictate how much information an organization sends out and to whom it is sent. Harry Rosenthal, president of the Sundance Catalog, explains the benefit of an online catalog: "It's no skin off my nose if a lot of people look at it because it doesn't represent any added cost."[55]

Clos LaChance Wines is an excellent example of a small company taking advantage of the Web. Just three years old and with only $400,000 in annual sales, Clos LaChance cannot afford to market its wines through national distributors or gourmet magazines like many of its competitors.[56] Yet, for the $50 per month the company spends to rent space on an Internet provider, it can provide as much information as it wants to help market its wines. "We're a little bitty guy," Clos LaChance owner Bill Murphy explained to *Inc. Magazine*. "We cannot compete from an advertising standpoint with [large competitors like Robert] Mondavi...[But on the Web] our information will be as accessible as theirs."[57]

Web servers can provide valuable feedback to the Web document owner. They can track activity on individual Web pages, giving the owners of the Web pages an indication of where people are accessing from and what files they are

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[53]John Montgomery, "Personal Internet," *PC Computing*, May 1995, p. 127.
[54]Jill H. Ellsworth, "Businesses on a Virtual Rush to the Virtual Mall," *PC Magazine*, 7 February 95, p. 190.
[55]Miller, p. 2.
[56]Steven Dickman, "Catching Customers on the Web, *Inc. Technology*, Summer 1995, p.56.
[57]Dickman, p. 57.

accessing. They also can allow the viewer to send comments directly to the Web document owner. The server of Virtual Vineyard Inc. tracks individual viewer activity and uses that data to guide the individual viewer and design customized offers."[58] A staff member for the public relations firm that operates the Miller Genuine Draft Tap Room Web document spends 60 percent of her time answering e-mail generated by the document.[59]

The effectiveness of the Web as a communications tool has not escaped the Air Force. On March 28 the Department of the Air Force began posting its news releases, fact sheets, aircraft photos, and even a digital audio clip from an Air Force band. "The Internet represents an exciting new opportunity to provide information to the public," said Colonel Ron Sconyers, director of Air Force Public Affairs. He feels, "the Home Page is our gateway to the 21st Century. It will have a tremendous impact on the public's understanding of Air Force operations."[60]

Another Air Force Web location, this one for Air Force Headquarters, began earlier than the Department of the Air Force Web location and has experienced tremendous growth in visitors. In its first week online the week of January 2, 1995, its information was accessed 1,280 times. Fifty-three percent of the accesses came from computers in the military domain (those computer addresses ending in .mil) but there was also 99 accesses from the commercial domain (.com), 75 accesses from the education domain (.edu), 47 accesses from the European domain(.eur), and 12 from the Asian domain (.asi).

By the week of March 5 there were 26,349 accesses, the week of April 1 had 53,563 accesses, and the week of June 4 had 75,527 accesses. During that

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[58]Verity and Hof, p. 123.
[59]Peggy Dorf, "High-Tech Firms Launching Clients into Cyberspace," *Public Relations Journal*, May 1995, p. 30.
[60]Air Force Memorandum for Correspondents, 28 March 1995.

time the number of military domain accesses grew more than 2,500 percent but now represented only 24 percent of overall accesses. The rate of accesses from other domains was growing much faster than the rate for the military domain. Commercial accesses grew more than 12,700 percent, representing 17 percent of the total accesses for the week of June 4; educational domain accesses grew more than 5,200 percent to account for 5 percent of total accesses; European domain accesses grew more than 3,500 percent to account for 2 percent of total accesses; and Asian domain accesses grew more than 5,300 percent.[61]

The Web is already affecting how organizations provide information. It is, "helping [to] break down the boundaries between public relations and advertising," according to *Advertising Age* reporter Wendy Marx. "Traditionally, PR was the information provider: image building was the domain of advertising,"[62] she writes. *Time* reporter Janice Castro writes, "Agencies are learning some new tricks, and the ad game may never be the same again."[63] She explains:

> *The computer medium turns traditional big-brand advertising on its head. No longer is it enough to deliver a simple message that appeals to everyone--to say in sweeping terms to a mass audience, "Buy this car (or beer, or soap, or airline ticket) and get this life." Online consumers talk back. They demand instant information. The moment they lose interest, one click of the computer mouse, and they are gone. There is no lingering until the show comes back on. In order to hold their attention, advertisers are developing "interactive" advertising that delivers the message in successive layers as part of a dialogue with the consumer. Once the individual shows interest in the initial pitch, the interactive advertiser moves to the next stage, which delivers a message designed specifically for that customer.*

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[61]"www.hq.af.mil Server Usage," Air Force Headquarters Web Document, URL: http://www.hq.af.mil/DOCS/index.html.
[62]Wendy Marx, "PR Joins the Interactive Parade," *Advertising Age*, 17 April 1995, p. 15.
[63]Janice Castro, "Just Click to Buy," *Time*, Spring 1995, p. 74.

The Web adds another channel of mass communication for organizations, a channel which can be faster and do more damage than traditional media. The Pentium chip experience, in which Intel Corp. distributed a faulty chip to the public, is a textbook example. "People online were talking about the Pentium chip before the issue got out to the regular press," explains Richard Baker, director of corporate communications for CompuServe.[64] "Traditionally, you might take several days to write and distribute a press release, but now issues can materialize in cyberspace in a matter of minutes. All of these electronic resources will have to become standard tools of the trade," he adds.

Scanning other organization's Web pages for information about your organization will become as commonplace as scanning the press. A Ross/Middleberg survey of print media conducted last year indicates journalists were much more likely to use information provided by citizens' groups and other nonprofit organizations than business press releases.[65] *Public Relations Journal* reports, "Organizations will have to monitor [other organizations'] home pages carefully and be prepared to respond to both legitimate and illegitimate criticism at a moment's notice."[66]

Earlier this year Bell Atlantic's chief operating officer warned advertising agencies, "You can jump in early and help create this exciting new medium, or you can let the world pass you by, and find yourself operating the best darned buggy-whip business on Madison Avenue."[67]

A reason some organizations may be slow to establish a Web presence is that the Internet audience is too unrepresentative of the general public. "The

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[64]Michael J. Major, "How Tech-Friendly Companies Communicate," *Public Relations Journal*, May 1995, p. 26.
[65]Steven S. Ross, "Public Relations in Cyberspace," *Public Relations Journal*, May 1995, p. 37.
[66]Ross, p. 37.
[67]Castro, p. 74.

Internet's 40 million user population is skewed," according to the May issue of *Public Relations Journal*, "Eighty percent are males aged 18-30, mostly college students or graduates."[68]

While that demographic group may not appeal to some organizations, it closely resembles the makeup of the Air Force. Eighty-four percent of the Air Force's 404,400 active duty members are male, most have a degree or have taken college courses, and the average age of an Air Force member is 30 years old.[69] The Internet's demographic makeup is also very similar to the demographic makeup of Air Force recruits.

The media, another primary audience of the Air Force, is also largely male and well educated. Sixteen percent of journalists go online daily and another 17 percent go on line at least weekly, according to a survey conducted by Ross/Middleberg last fall.[70] Only 36 percent said they never go online.

Web user demographics may be skewed but they are becoming more representative of the population. According to surveys conducted by Georgia Tech, the median age of Web users is increasing as is the percentage of women users.[71] The sex trend is, "quite linear and suggests an even male/female ratio could be achieved during the first quarter of 1997."

As figures given earlier indicate, there is a market for Air Force information on the Web. "All of the online services, including Microsoft, has inquired about providing a jump to AF Link [the Department of the Air Force Web document] for AF information," according to Capt. Terry Bowman, chief of Air Force Public Affairs Technology Team.[72] When asked if news librarians would be interested in

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[68]Ross, p. 36.
[69]Air Force News Service, 21 July 95.
[70]Susan Fry Bovet, "Hi-Tech Editors Lead Charge into Cyberspace," *Public Relation Journal*, May 1995, p. 40.
[71]"GVU's 3rd WWW Survey Page."
[72]Capt. Terry Bowman, "Re: Hot Java," E-mail note posted to *www* listserv, 19 July 1995.

a Web page for an Air Force base, Barbara Semonche, library director for the University of North Carolina School of Journalism and Mass Communication and listowner of the media librarian listserv *newslib*, replied, "How can we not?"[73]

Summary

Organizations are developing a presence on the Web to make their information easily and ever available to a growing worldwide audience. Many use the Web's multimedia and interactive capabilities to provide information in a way that was either not possible or not practical using other methods of communication. Providing information to everyone on the Web is no more expensive than providing it to one person and the information becomes available to the entire Web audience as soon as it is placed on the Web. In addition, each organization on the Web has essentially the same direct access to individuals as every other organization on the Web. The basics of how an organization should present its information are covered in the next section.

[73]Barbara Semonche, "Re: Ideas for Web Page," E-mail note posted to *newslib* listserv, 21 July 1995.

Web Document Design

Designing Web pages is much easier than people think. The main thing is to try to present information in a straightforward way. Make it easy to follow, flow logically and choose links that point the readers to relevant stuff without confusing them.

Ken Wong, Time Warner Electronic Publishing[74]

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[74]David S. Bennahum, "Our Brilliant Careers," *NetGuide*, April 1995, p. 52.

Creating a Web presence is very easy but it takes some planning to create an effective Web presence. The basic areas to address with Web design are utility, look, and speed. Each of these factors is intertwined.

Utility is the most fundamental design consideration. An organization first has to determine why it is developing a Web presence and what it expects to gain from a Web presence.[75] The answers to these questions will help determine the look of the Web site. The needs of the potential audience should be weighed heavily An artsy Web page with a lot of graphics may be excessive if all the customers are looking for is text. Similarly, an organization which prides itself on its graphics or photos but only uses text in its Web document is sending the wrong signal to its customers. A Web site should be an accurate representation of the organization that creates it.

The primary consideration of the look of a Web page is its overall structure. The way a Web page is structured determines how it is navigated. One organization scheme is to group together information relatively evenly under major topic headings.[76] A single Web document can and often does contain many different topics but the major topic heading list should resemble a book's table of contents, not its index. Laura Lemay, author of *Teach Yourself Web Publishing with HTML in a Week*, writes, "You can come up with as many topics as you want, but try to keep each topic reasonably short; if a single topic seems too large, try to break it up into subtopics. If you have too many small topics, try to group them together into some sort of more general topic heading."[77] The strength of this hierarchical structure is its predictability.

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[75]Lemay, p. 28.
[76]Lemay, p. 31.
[77]Lemay, p.31.

When information in a Web document does not logically fit such a hierarchical arrangement, a Web structure is more appropriate.[78] Lemay explains,

> "Web structures tend to be free-flowing and allow the reader to wander aimlessly through the content...The environment is organized so that each page is a specific location, and from that location you can "move" in several different directions, exploring the environment much in the way you would move from room to room in a building in the real world."[79]

Unpredictability is both the strength and weakness of this structure.

Many Web pages incorporate elements of both designs. These documents have the predictable structure of the first example and incorporate intuitive links to related information in the body of the text. The links do not need to be to other information in the Web document. Links to documents at other locations can add depth to a Web document, giving it more substance than if it stood by itself. Links that lead outside the document should be considered carefully, however. Links that lead to another Web document can lead the reader away for good, particularly if the document being linked to has no link back to the original document.

The physical attractiveness of a Web site can help attract and retain readers. The Web can incorporate full-color graphics, photos and video. Often the best way to convey information is through graphic elements. Graphic elements used in Web documents should be more than just pleasing to the eye for two major reasons. First, graphic elements are larger files than text and take much more time to receive than text. A large graphic element or a lot of graphic elements on one Web page can quickly grind a Web session to a halt. Second, graphic elements cannot be seen by people accessing the Web on a non-graphical Web browser so the information graphic elements convey is useless to these users.

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[78]Lemay, p.39.
[79]Lemay, pp. 39-40.

This leads to another major design consideration: Web documents do not look the same on all computers. What works for one Web browser may not work for another browser. The same document may also look different on two versions of the same browser if the users configured their browser software differently or the users have different quality monitors (see page 24-1).

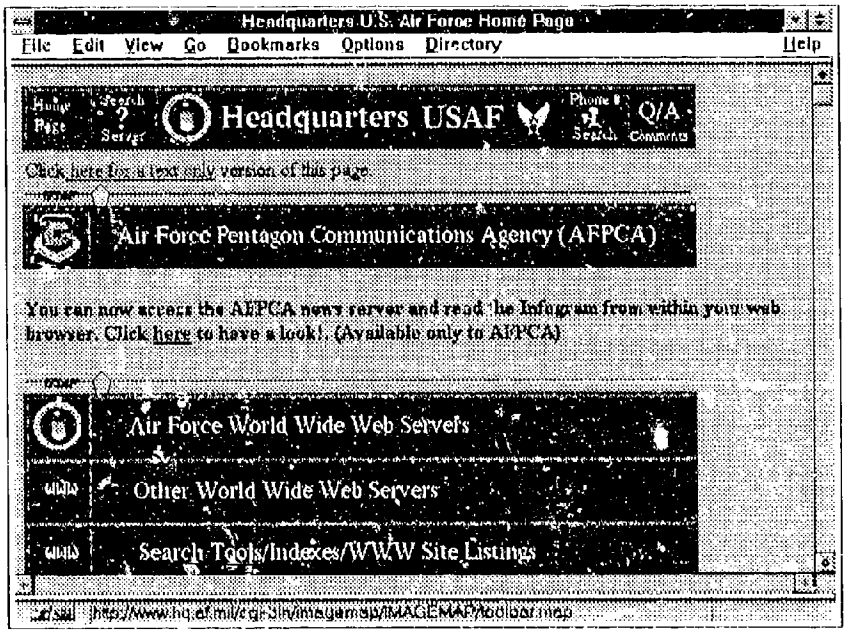
People also access the Web at different speeds. Some people access the Web through high speed lines but the most frequent connection speed is the Web minimum 14.4 Kbps.[80] A modest 40K image file takes about one half minute to load over a 14.4 Kbps connection. The speed of the server connection should be considered, too. While a 56 Kbps connection may work fine for a small Web server, it cannot handle much traffic.[81] A graphics-intensive Web document on a server with a 56 Kbps connection may look nice but it also reduces the amount of people who can access the document.

Graphic elements are not the only things that can slow a Web session down. Large text files have the same effect. Unless too much continuity would be lost, large files should be broken down into several smaller files. All the information is retained but navigation is speeded up significantly.

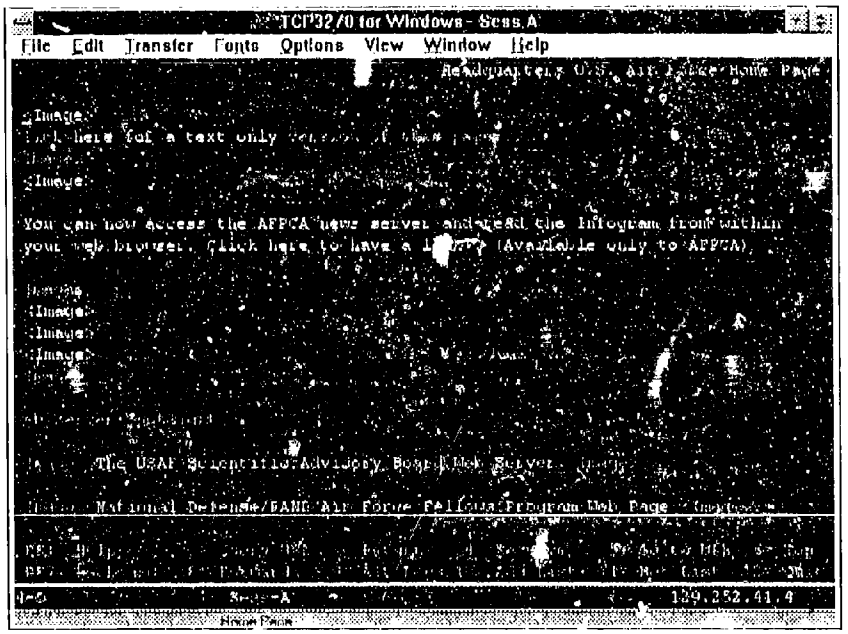
Navigation is an important design consideration. A major attraction to the Web is the capability to quickly access an immense amount of diverse information. It is impossible for any individual to digest all the information available on the Web, so editing becomes even more important. Jim Wolffe, editor of Army Times News Service, explains,

> *People don't want to use on-line services to wade through massively long, under-edited stories. If anything, they want it shorter and faster than people reading print. What on-line news we can do that the print folks can't is provide a tightly written story and*

[80]"GVU's 3rd WWW Survey Page."
[81]Ben Smith, "Making the Internet Connection," *Byte*, January 1995, p. 127.



Web document accessed with a graphical browser.



Same Web document accessed with a non-graphical browser.

> *then add to it raw source material. If someone gives an important speech, the online service can summarize the speech and then, for the minority who would want it, give the full text (or a video or audio clip).*"[82]

The Web offers a lot of capability for Web document designers but that does not mean a Web document developer has to use them all. Allen Mayer, editor of *Buzz*, believes,

> *Right now, people will spend three minutes downloading a file of Socks the Cat meowing--something that they wouldn't give the time of day to on TV or radio. At the end of the day, though, the bells and whistles are not going to do it. The same things that make a print product successful will be what will make a Web site successful--its substance and sensibility.*[83]

Summary

Communicating on the Web is essentially the same as communication through other means. The purpose of the communication should determine how it is presented. While design can greatly enhance a message's effectiveness, it can also detract from the message. Web document developers may have a wide range of multimedia presentation tools at their disposal; but the present technological reality for a large percentage of Web users--slow connections--seriously limits the developers' practical options. Web documents also often look drastically different from machine to machine, further complicating design considerations. Even if these problems are temporary, the Web document developer should be most concerned with making the document useful and easy to use. The next part of this project was devoted to creating an actual Web document to give the the author first-hand knowledge of practical considerations that go into creating documents for the Web.

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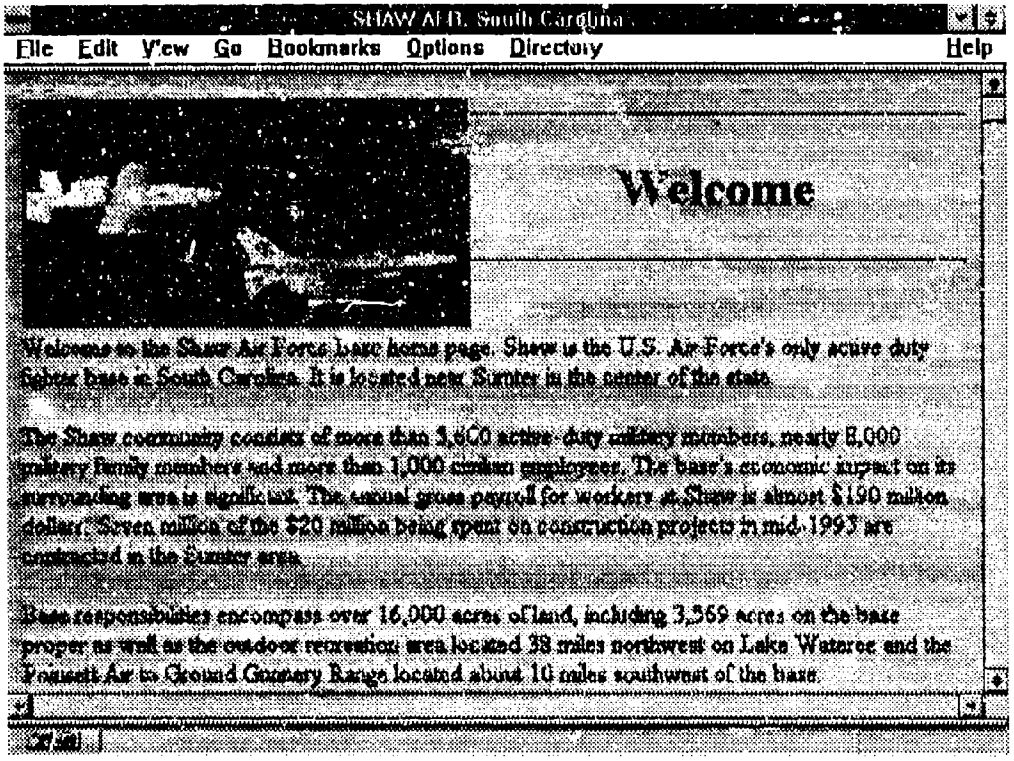
[82]Jim Wolfe, "How Much is Too Much," E-mail note posted to *online-news* listserv, 21 July 1995.
[83]Manly, p. 72.

The Shaw Web Document



Shaw Air Force Base in Sumter, South Carolina was chosen as the Web document subject because it is representative of the organizations this project's plan is directed toward and because it is located near the University of South Carolina.

The goal of the Shaw Web document was simply to establish an attractive and informative presence for the base on the Web. Text and graphics used to create the Web document were those that the base public affairs office was already using in hard copy form. A IBM-compatible disk containing the Web document is included in this project.

The primary lesson learned from this part of the project is that creating a Web document is **extremely easy**. One can create a Web document from scratch or convert an existing word processing document into a Web document in a matter of minutes. Any word processing program that can save text as an ASCII file will work. Formatting codes called hypertext markup language (HTML) are inserted in the text to transform the plain ASCII text into a attractive document with headers, graphic elements, links and other special features.

A Web document may look nice when seen through a Web browser, but seen through a word processor it looks like a stream of plain text. Graphic elements which appear in the document through a Web browser are actually separate files which are pointed to in the Web document's text file.

Learning HTML is not too difficult because there are not a lot of codes or ways to use the codes. Most people who create Web documents learned HTML in 1 to 3 hours and almost all learned it in less than one day.[84] Learning HTML is not always required. Some software now available can convert a standard word

[84]"GVU's 3rd WWW Survey Page."

processing document into an HTML document and other software uses a specialized tool bar that makes inserting codes easy.

Finding information on creating Web documents is not a problem. There are many books available on the subject and plenty of instructional material located on the Web itself. Two books referred to for this project were *Running a Perfect Web Site* by David M. Chandler and *Teach Yourself Web Publishing with HTML in a Week* by Laura Lemay. Information found at http://www-pcd.stanford.edu/mogens/intro/tutorial.html was also very helpful, as was the *online-news* listserv and *comp.infosystems.www* series of news groups.

One of the best ways to learn the how to create a specific effect is to find an existing Web document that uses that effect then examine its code. To see its source code, click on *Options*, then *View Source* on the browser's menu bar when you have the document on the screen.

Creating and maintaining complex Web documents can be a full-time job, but creating and maintaining simple Web documents can be as fast as creating a comparable word processing document. Unlike other publication means, however, distribution and duplication of Web documents is immediate and take no additional effort for the document creator.

Creating a Web document can have the same effect on an office as adding more people because the document is always available one server can handle several information requests at one time. This feature becomes even more valuable in crises when so many people need the same basic information in a hurry that the staff cannot process the requests.

A second lesson learned it that graphic elements, called images in Web publishing, do not need to be big to be effective. Large images look nice once they load but are really n t worth it if the visitor is just browsing the site. Unless it is an image the viewer really wants to see, the viewer will likely stop the image

from downloading and move on to another site. Small images enhance a layout without slowing down navigation too much. Images stored in the GIF format are less detailed than those stored in the JPEG format but they are also faster to load. Unless viewers will be willing to wait for the JPEG-formatted image to load, GIF-formatted images should be used.

The largest images on the Shaw Web document are in the 30K range and should take no more than 24 seconds to load on the slowest connection. A title graphic element is used on all the pages of the document to take add some color and to take advantage of cache memory. Because the title graphic is stored in cache memory after it is loaded for the first time, it comes up right away when the viewer goes from page to page on the Shaw document. The text in individual pages on the Shaw Web document are usually no more than two standard typewritten pages long to keep navigation fast.

Creating images is probably the most time consuming part of Web page design and usually requires additional software, hardware and expertise. Web document creators should learn how to create images to improve the look of a Web document but should not feel compelled to add images to every page of a Web document. When getting something on the Web fast (breaking news, for instance) is important or when image-making equipment is not available, it is better to create text-only documents.

A third lesson learned is that links can be incorporated relatively seemlessly and help prevent duplication of effort. There is no reason to restate information or recreate someone else's information if you can link to it.

Links for documents in the Shaw Web document are usually intuitive, incorporated naturally in the text. Links to information outside the Shaw Web document are used when necessary but are kept to a minimum to prevent viewers from wandering off.

A fourth lesson learned is that critiquing Web documents is one of the best ways to learn Web design. This may seem like an obvious point but there is really a big difference between briefly scanning a Web document and formally critiquing it. A formal critique forces an individual to look at all parts of a Web design--from the creator's choice in content to the use of images to the words in the title. It is amazing how many fundamental mistakes and bad decisions Web document designers make.

One of the most common and least forgivable mistakes is Web documents not readily identifying themselves. For instance, one attractive, informative Web document for a university's college of journalism and mass communication forces the viewer to rummage through the text of several pages to find the identity and location of the university. The Shaw Web document uses "Shaw Air Force Base" and the subject of a page in the title bar for each page. Each page also has a title image of the words "Shaw Air Force Base" superimposed over a picture of two of the base's aircraft in flight.

The most common bad decisions are using oversized images at inappropriate times and linking to pages with an "Under Construction" sign. Both are breaches of the cardinal rule of Nettiquette: "Never waste others time or money."[85] If oversized images are used, they should be linked to from smaller versions of the images. The viewer can still access the oversized image if he or she wants and is not slowed down if he or she does not.

Most Web documents continually evolve so placing an "Under Construction" sign in a Web document is unnecessary. Viewers are not concerned about what is not in a Web document; they are concerned about what is in a Web document. Allowing the viewer to link to an "Under Construction" sign highlights

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[85]Susan Fry Bovet, "Rules of the Road," *Public Relations Journal*, May 1995, p. 41.

your Web documents's shortcomings and frustrates the viewer. Web document creators can let viewers know how the site will change by linking to a "Coming Attractions" page which describes planned developments. This lets the viewer know why a return trip is worthwhile without wasting his or her time tracking down dead-end links.

Air Force Web sites are not immune to fundamental mistakes and bad decisions. One overseas base lists the names, phone numbers and e-mail addresses of each individual on base. Unless these individuals have given permission to use this information, the listing is a violation of the Privacy Act.

One of the first things a viewer sees on many base Web documents is an ominous-sounding warning. The following is how one base Web document handles the warning: [86]

> **"Official U.S. government system for AUTHORIZED USE ONLY, Do not discuss, enter, transfer, process, or transmit classified/sensitive national security information or greater sensitivity than that for which this system is authorized. Use of this system constitutes consent to security testing and monitoring, UNAUTHORIZED USE COULD RESULT IN CRIMINAL PROSECUTION."**
>
> **IMPORTANT INFORMATION FROM OSAF WASHINGTON DC / PUBLIC AFFAIRS**
>
> SUBJECT: CLEARANCE PROCEDURES FOR MAKING ELECTRONIC INFORMATION AVAILABLE TO THE PUBLIC

[86] Tinker Air Force Base Web Document. URL: http://www1.tinker.af.mil/default.htm.

All new requirements for world wide web or bullentin board servers must be coordinated with the base C4 systems officer (CSO) AND APPROVED BY THE INSTALLATION COMMANDER . The proliferation of www servers and bulletin boards for distribution of information to the general public should be limited IN MOST CASES to one per host unit on an installation. One server may serve many different users. Establishment of a Home Page for public information should be based upon the amount of information the organization is tasked to provide. In most cases, the host base PUBLIC AFFAIRS (PA) office is the OPR for this information. Organization with a requirement to place information on a www server or bulletin board must check with the Base CSO on the availability of existing servers before submitting a requirement to establish a new server.

This warning is not required and only serves to drive the intended audience away. Even if it was required, it deserves to be treated as fine print rather than top billing.

The final lesson learned is that, connectivity excepted, public affairs offices can easily create and maintain a basic Web presence for their organizations or bases. Public affairs people are trained to create and present a credible product. Far too many organizations and bases are represented by Web documents created by people whose only credentials are control of the Web server. Certainly, these people are important for keeping the server up and programming advanced functions, but the lead agency for information should be the agency trained to provide it: public affairs.

Summary

The best way to learn about Web document development is to produce a Web document yourself. Details which whould otherwise be overlooked become apparent and their importance appreciated. Web document development is a skill well within the reach of most individuals, making a Web presence a practical possibility for most organizations. The next section outlines a plan which could help Air Force bases develop a Web presence. The plan has been reviewed and improved by MSgt. Lee Wayman, the Air Force News Agency's Web contact.

The Plan

Air Force Public Affairs Plan for Implementation of Base-Level World Wide Web Documents

I. Purpose: This plan will identify World Wide Web-related responsibilities of Air Force public affairs offices and help them establish a Web presence for their organizations or bases.

II. Assumptions:

A. As the proliferation of the World Wide Web continues, all Air Force bases will eventually use the Web to distribute information internally and externally.

B. Some base Web pages have been and will be developed without the help or knowledge of the host base public affairs office.

C. Base public affairs offices will remain the only base-level organization authorized to release information to the public.

D. Web pages developed without public affairs knowledge or assistance may violate the spirit and letter of the Secretary of Defense's Principles of Information and the Privacy Act.

III. Objectives of Air Force Web Documents:

A. Make information more accessible to members of the Air Force community, the general public, and the media.

B. Educate general public about the role of the base and its people in the support of the Air Force mission.

C. Keep base members informed about things which affect their lives.

D. Reduce duplication of services and effort.

IV. Responsibilities:

A. SAF/PA, through the Technology Team, will:

1. Set policies for all Air Force public affairs offices associated with a World Wide Web presence.
2. Provide guidance to all public affairs offices involved in a World Wide Web presence.
3. Be involved in the planning and maintenance of all Air Force headquarters-level World Wide Web servers.
4. Review all material before it is placed on Air Force headquarters-level servers. Certain types of material which change periodically--like organizational charts--will not need to be reviewed by public affairs offices if they have already been previously reviewed and the the nature of the new changes are strictly administrative or do not pertain to operational or policy issues.
5. Review all Air Force Web pages periodically to ensure compliance to policy.

B. Air Force News Agency will:

1. Maintain a World Wide Web server.
2. Produce and maintain general Air Force public affairs products for use on a Web server, including:
    a. Air Force News articles
    b. Air Force Fact Sheets
    c. Biographies of all Air Force general officers and equivalent-grade civilians

C. Major Command public affairs offices will:

1. Produce and maintain MAJCOM-specific public affairs products for use on a Web server, including:
    a. MAJCOM news service articles
    b. MAJCOM fact sheets

2. Review all information before it is placed on the MAJCOM Web server. Certain types of material which change periodically--like organizational charts--will not need to be reviewed by public affairs offices if they have already been previously reviewed and the the nature of the new changes are strictly administrative or do not pertain to operational or policy issues.
3. Be involved in the planning and maintenance of subordinate base-level World Wide Web servers.
4. Provide MAJCOM-specific guidance to subordinate public affairs offices.

D. Base public affairs offices will:

1. Be involved in the planning and maintenance of base-level World Wide Web servers.
2. Review all information placed on the Web server for compliance to information release policy. Public affairs offices are not expected to generate all the information placed on the base Web server. The organizations currently responsible for producing specific types of information will continue to produce this information if it is placed on the Web server. For example, base information management offices will still produce the base bulletin. Certain types of material which change periodically--like organizational charts--will not need to be reviewed by public affairs offices if they have already been previously reviewed and the the nature of the new changes are strictly administrative or do not pertain to operational or policy issues.
3. Produce and maintain base-specific public affairs products for use on the base Web server, including:
    a. News releases

b. Biographies of key base personnel. Although the bases cannot produce biographies of general officers or equivalent-grade civilians, they will help AFNEWS develop biographies of these people stationed at their bases.

c. Base-level fact sheets

V. Action Plan

A. *Identify a Web project officer.* The individual selected does not need Web experience or be a computer expert but should be experienced in layout and design. The person should also have a working knowledge of the laws and policies relating to information release.

B. *Determine if the organization or base has a Web presence and identify the individuals responsible for that presence.* The base communication squadron should know if the organization or base has a presence. A list of Air Force Web sites is also available on the Web at http://www.hq.af.mil/USAF/USAF.html. If the base or organization does have a Web presence, identify the contact for the Web presence and take a look at the Web document.

C. *Determine if the organization or base has a Web server or access to a Web server.* If it does, check on the availability and capability of the server. Specifically, check to see how much storage space is available on the server and what the Web connection speed is. If the base does not have a Web server or access to a Web server, check on the availablity of a commercial Web server.

D. *Get informed.* The World Wide Web is evolving daily so the public affairs Web representative must work to stay informed.

1. All public affairs Web contacts must join the USAF World Wide Web listserv. This e-mail discussion group is where Air Force Web

contacts can ask questions and provide information about the Web in general and areas specific to the Air Force. To subscribe, e-mail listproc@infosphere.safb.af.mil the following message: *subscribe www your name*. Leave the subject line blank.

2. The *comp.infosystems.www* series of Usenet news groups is where Web contacts around the world ask questions and provide information.
3. Federal agency classes and conferences are open to military Web contacts.

E. *Establish a Web Committee.* Establishing and maintaining a Web presence should be a base-wide effort. The recommended Web committee members and their functions are as follows:

1. Public affairs. Oversees all content, layout, and design issues. Also responsible for responding to reader e-mail messages.
2. Communications squadron. Handles all server and connectivity issues.
3. Legal. Provides guidance on issues like the Privacy Act and copyright.
4. Visual information. Develops graphic and photographic images for server.
5. Intelligence. Ensures information on the server is not a threat to operational security.
6. Unit public affairs representatives. Ensure their organizations' needs are addressed.

F. *Plan content.*

1. Local information: The utility of the Web document is largely determined by the amount and quality of local information it

provides. Determine what content will best support the Web document's objectives. Consider information that is readily available, decide what information needs to be produced, and who will be responsible for each piece of information on the server.

2. Outside links. Base Web documents should link to information outside of the base's area of responsibility but considered to be of interest to the base Web server's audience. Mandatory links include the base's immediate headquarters and the Department of the Air Force (http:www.dtic.dla.mil/airforcelink) Web documents. A base should also link to the local civilian community Web document, if one exists.

3. Feedback mechanism. Information on how to contact the base public affairs office must be prominently displayed. Incorporate into the document the capability for the viewer to send e-mail directly to the base Web contact.

G. *Develop document.* Develop the master layout and overall structure of the Web document before placing it online. Begin by loading a few basic documents on the Web, then add information and services as required. A demonstration Web document which uses information from Shaw Air Force Base is enclosed. See attachment 2 to this plan for an explanation of the demonstration document's design.

H. *Develop local training and continuity file.* Information should be detailed enough for an individual to step in and maintain the Web document during periods when base Web contact is not available.

I. *Maintenance.* Check all links in the Web document and respond to viewer comments daily.

J. *Advertise*

1. Register the Web address with the Department of the Air Force Web master and base's headquarters Web master. They will post the Web site on their master list of Web sites. People who view these lists will be able to link directly to the Web site.
2. Notify the base's media contacts about the Web document.
3. Notify the local community about the Web document through a press release and letters to selected community agencies. Arrange a link to the base Web document from the local civilian Web document if one exists.
4. Notify the Web community about the Web document by registering the server with the Web What's New page (http://www.ncsa.uiuc.edu/SDG/Software/Mosaic/Docs/whats-new.html) and Web search engines (Lycos, WebCrawler, etc.) and by posting a notice at the comp.infosystems.announce UseNet news group.
5. Notify the base community by running a notice in the base newspaper and base bulletin.
6. Include the address for the Web document everywhere the base address is used: letterhead, business cards, envelopes, etc.

K. *Feedback*

1. Configure server to track accesses by file and by visitor domain.
2. Survey the local potential audience to determine why people choose to visit or not visit the site.

L. *Metrics*

1. Track usage by files accessed and by domain accessed from.
2. Track nature and quantity of customer feedback comments.
3. Report figures to Air Force base leadership, as appropriate.

M. *Refine document.*

1. Continue to add information and services as they become available.
2. Alter the nature and scope of the document, if necessary, based upon operational, policy, and customer needs.

V. Attachments

A. Air Force Policy Guidance. "Making Electronic Information Available to the Public." June 1995.

B. Maintaining the Shaw AFB Web Document.

AIR FORCE POLICY GUIDANCE
MAKING ELECTRONIC INFORMATION AVAILABLE TO THE PUBLIC

1. Definitions:
Internet - Refers to the worldwide collection of government, military, commercial, and educational computer networks interconnected using the Transmission Control Protocol/Internet Protocol (TCP/IP) standard. Typical software protocols or software running on the Internet are Telnet, File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP), and Hypertext Transfer Protocol (HTTP) used on the World Wide Web (WWW).

Public Information - Information to which the public may have access. All information maintained on a computer system connected to the Internet and in which no access controls are in place must be public information.

2. Policy:

Only releasable public information may be directly accessible from the Internet. Since the Internet provides access across a number of interconnected networks, information on a server directly connected to the Internet without access controls is potentially available to everyone on the Internet. In accordance with Deputy Secretary of Defense memorandum, 17 Feb 95, "Clearance Procedures for Making Electronic Information Available to the Public," information placed on the Internet, without controls to eliminate public access, must be cleared in a manner consistent with the procedures already in place for clearing "hard" copy information (Ref AFI 35-205, "Air Force Security and Policy Review Program," 25 Feb 94, and DoD Directive 5230.9, "Clearance of DoD Information for Public Release", 2 Apr 82). In most cases, material proposed for electronic release will be submitted through the same public affairs channels as "hard" copy material proposed for publication.

3. Specific Guidance

a. The following types of information cannot be placed on a system with uncontrolled Internet access:

(1) Unencrypted Classified information.

(2) For Official Use Only (FOUO) information (AFI 37-131) which includes, but is not limited to:

(a) Personal or Privacy Act Information (AFI 37-132, "Air Force Privacy Act Program").

(b) Unclassified information that requires special handling, i.e., encrypt for transmission only, limited distribution, scientific and technical information, etc. (SAF/IADM Memo, 7 Dec 94; SAF/AQT Memo, 12 Dec 94; and AFI 61-204, "Disseminating Scientific and Technical Information").

(3) Scientific or research and development information covered by AFI 61-204 with distribution statements B through F.

(4) FOIA-exempt information not cleared for public release (AFI 37-131, para. 10).

(5) Information requiring security review (AFI 35-205).

b. Single Source information: Managers of Home Pages are responsible for maintaining and updating the information for which they are OPR. Files should not be copied from other sources and placed on a Home Page. For example: The Air Force News Agency, Kelly AFB, TX, is responsible for all weapon system fact sheets and general officer biographies. Should any other Home Page elect to offer any of these on their system, they should simply refer or "point" to the AFNEWS Home Page. This allows timely information to be updated at a single location while retaining currency at all levels. This does not, however, prevent information OPRs from "mirroring" or broadcasting popular information to other sites as long as the established system also incorporates constant updates.

c. Referencing or "Pointing": All Air Force systems designed to provide public information, as well as those under contract, should refrain from "pointing" or referencing material outside the scope of the information for which they are OPR. In most cases, Home Pages should refer or "point" only to parent commands and subordinate/tenant units. Indexes or lists of other Air Force and DoD Pages will only reside on the MAJCOM and Air Force "top pages." Local Pages should "point" back to these centralized lists. Additions, deletions, and changes to the Air Force index should be sent via electronic mail to the address listed on the services "top page," Air Force LINK. MAJCOMs will extract their portion of the list from the Air Force index.

d. All new requirements for World Wide Web or bulletin board servers must be coordinated with the base C4 Systems Officer (CSO) and approved by the installation commander. The proliferation of WWW servers and bulletin boards for distribution of information to the general public should be limited, in most

cases, to one per host unit on an installation. One server may serve many different users. Establishment of a Home Page for public information should be based upon the amount of information the organization is tasked to provide. In most instances, the host base public affairs office is the OPR for this information. Organizations with a requirement to place information on a WWW server or bulletin board must check with the base CSO on availability of existing servers before submitting a requirement to establish a new server. In any case, WWW administrators should forward the Uniform Resource Locator (URL) to the address listed on the Air Force's "top page," Air Force LINK, prior to making the Home Page available to the public. This will provide a centralized list of all Air Force sites available on the WWW.

Maintaining the Shaw AFB Web Document

All of the material used in the Shaw AFB Web document is on this disk in the Shaw subdirectory. The files ending with an "htm" extension are text documents; all the files ending in "gif" are pictures or graphics.

The text files are different pages in the document. The first page, or Home Page, is intro.htm. All other pages flow naturally from the Home Page. To see what the document looks like in Netscape, click on *File*, then *Open File...*, then find and double click on *intro.htm* in the *Shaw* subdirectory. To edit a text file, open it up in a word processing program. When you're done editing, save the document as an ascii document. If you're using Microsoft Word, you would save it as a "text only" document.

When you open up a Web document in a word processor, you'll find that much of it looks like a regular word processing document. What sets it apart are the cryptic-looking formatting codes that begin with < symbol and end with > symbol. These symbols tell Web browsers when a special formatting feature begins and ends. The formatting codes are called hypertext markup language (HTML).

You can add new pages to the Web document by typing up the commands from scratch but the easiest way is to copy a page with the proper format and replace the text and hypertext references as needed. It's easy to make a mistake when writing HTML code and sometimes even a simple mistake can throw a format way off. The codes are often called tags. Codes are not case sensitive so you can use upper or lower case text to write them.

Design Elements

The individual pages share several basic design elements to maintain a consistent look for the entire document. Instructions on how different elements were created for the Shaw Web document are listed below.

Title Bar

Each file begins with an overall document title. The overall document title does not appear in the main text when a document is viewed on a Web browser. In Netscape, it appears on the title bar. The code that goes before an overall document title is *<title>* and the code that follows it is *</title>*. All of Shaw's titles have SHAW AFB in all capital letters, a space, a hyphen, another space, then a description of the particular document's contents typed in upper and lower case text. For instance, the overall document title code for the 20th Logistics Group document looks like this:

<title>SHAW AFB - 20th Logistics Group</title>

Title Graphic

The next standard design element in the Shaw Web document is the title graphic element. The current title graphic element is a picture of a Shaw F-16 and A-10 flying together with the words *Shaw Air Force Base* superimposed in red letters centered at the top of the picture. The picture was scanned at the University of South Carolina Computer Services Division and the text was added using the software Adobe Photoshop. The element always appears in the upper left-hand corner of all the Web documents. People who visit the Shaw Web document using a non-graphical Web browser won't be able to see this or any of the other images. As a result, an explanation of the element is included in the code for the element. The code is as follows:

<img align=left alt="Shaw Air Force Base" src=title.gif>

What this code means is that is an image (*img*), aligned to the left of the screen (*align left*), shown as the words Shaw Air Force Base on non-graphical Web browsers (*alt "Shaw Air Force Base"*) and that the source of the picture is a file called title.gif (*src title.gif*).

A smaller version of this graphic element appears at the bottom left of all the Shaw Web document pages except the Home Page. It symbolizes the Home Page and clicking on it returns the reader to the Home Page. The smaller version was made by reducing the title graphic element in Adobe Photoshop.

Other Graphics

You format other graphics the same way you formatted the title graphic. Graphic images are usually pretty big files and can take a long time to load so it's best to be very careful about using them. All the graphics used in the Shaw Web document are in the neighborhood of 40K or smaller so they should be able to load in about 30 seconds or less using the slowest graphical connection. Once a file is loaded it goes into cache memory it usually does not need to be loaded again. Reusing the same basic graphic images can add color to the page without slowing the connection down too much. That's why the title graphic and the Home Page link graphic are the same on every page. If you want to change a graphic image on the Shaw Web document, the easiest way to do it is to overwrite the new image file over the old image file. For instance, if you change the title graphic, call the new title graphic *intro.gif*. Using the same name changes the document and keeps you from having to update your source codes.

Wrapping Text

A graphic inserted into a document with no other codes will display flush left and push text above it or below it. This can create a jarring layout and actually hurt rather than help a document. To wrap the text around the picture, insert an alignment code after the *img* code. To have the picture show up on the left and the text to wrap around the right side, type *align left* after the *img* code.

Use *align=right* if you want the text on the left and the graphic on the right. The entire code for a graphic, including alignment and the alternate name for non-graphical browsers, would look something like this:

<img align=left alt="House Photo" src=house.gif>

Paragraphs

A document usually looks different in a word processing program than it does when it's read on the Web. For instance, a word processing document with well defined paragraphs will appear as one continuous paragraph on the Web unless HTML paragraph codes are inserted in the word processing document. The code to start a new paragraph is * * and it is placed at the end of a paragraph. Unlike many of the other HTML codes, you don't need a closing tag (* *) for paragraphs. This code inserts a blank line between paragraphs but does not indent paragraphs.

Links

The ability to move within a document or to other documents simply by clicking on an image or text is called hypertext and is one of the World Wide Web's best features. The codes for setting up a hypertext link vary depending on what the source of the link is (text or graphics) and where it links to (another paragraph, another document, another Web location). The examples below show the differences:

- Using a highlighted word or phrase to point to another document:

  Highlighted word or words

  This code lets the Web know that its linking (*a href*), what its linking to (*name of document or URL for Web site*), and what words will be highlighted and clickable (*Highlighted word or words*) and when to stop highlighting (*/a*).

- Using a graphic to point to another document:

  <img src=*name of image file*>

  This code lets the Web know where it is linking (*a href name of file or URL for Web site*), that the clickable item is an image (*img*), and what the name of the image file is (*src name of image file*).

- Pointing to a specific place in a document:

  <a href="*#place you want to point to*">*Place you want to point to*</A>

  First you indicate that you want to point (*a href*), type what you want to point to ("*#place you want to point to*"), and type what the highlighted, clickable text should say (*Place you want to point to*). If you're pointing to specific place in another file, put the name of the file before the # sign.

The next step is to code the destination (*a name*) using the same name (*"place you want to point to"*) you used earlier.

Lists

You can create several types of lists using HTML, but the Shaw Web document uses on one type, the unnumbered list. The unnumbered list will make all the items in the list bulleted items. To create a list, insert the code *
* just before the list and *
* just after the list. Then, before each listed item, add the code *<li>*.

Horizontal Lines

The code for a horizontal line is *<hr>*. Like the paragraph code, you don't need to use a closing code for the horizontal line. The codes that surround the *<hr>* code can change its placement so play close attention to keep documents looking uniform.

A horizontal line is used before and after the centered header text of each file just to the right of the title graphic. Note the placement of the *<hr>* codes in the following Home Page header:

<img align left alt "Shaw Air Force Base" src title.gif><HR>
<CENTER><h1>Welcome</h1><P><HR><P></CENTER><p>

Two horizontal lines to separate menu items from the rest of the text. The code for that is *<hr><hr>*.

One horizontal line is centered between different linked areas in the same file (squadrons, for instance). The code for that is *<p><hr>*.

One horizontal line is placed just before the Home Page link at the end of a file. That code is *<p><hr>*.

Bold

To make a selection of text bold, place a ** code just before the selection and a ** code after the selection. If you forget the closing bold code everything after the bold code will be bold. Text links in the Shaw Web document are in bold if they stand alone (like in a list) to help them stand out but aren't if they appear naturally in text (like in a paragraph) to keep them from being too distracting.

Italics

The opening code for italics is and the closing code is . Italics are used in the Shaw Web document to indicate how current a document is.

Conclusion

There are many more things that can be done using HTML to change the look and capability of the Shaw Web document. There are many books on the subject and many documents on the Web that tell how.

The purpose of this project, however, was to give a relative newcomer the information he or she would need to maintain the Shaw Web document in its current state.

The creator of the Shaw Web document is Capt. Tom Gilroy. He is reachable before August 15, 1995 by phone at (803) 794-0947 or via e-mail at *gilroy@scarolina.edu*. After August 15, 1995, you can pass a message to him at (301) 567-4643.

The contact for information about Shaw AFB is MSgt. Calvin Hill of Shaw AFB Public Affairs, (803) 668-3621.

The contact for the server which contains the Shaw Web document is Mr. Ben Breazeale of MidNet, reachable by phone at (803) 777-1085 or via e-mail at *midnet@scarolina.edu*.

Conclusion

Now, more than ever, public affairs offices need to harness the force-multiplying effects of technology to fulfill the information needs of the public. A World Wide Web presence for bases proposed in this project offers the following advantages:

- *Direct access.* The Air Force will have a direct link to the public. Previously, the only avenue the Air Force had to reach a mass audience was through the media or through advertising. Media coverage of Air Force news is not always balanced, plentiful or accurate. The Air Force has not had advertising money for years. The Web resolves that problem by giving the Air Force the opportunity to offer as much information as it wants directly to the individual.
- *Equal access.* Because all Web sites are equally accessible, the Air Force has an equal platform with the media. Air Force information becomes just as accessible as media information.
- *Less redundancy.* The Web allows all bases to benefit from the work of one base. For instance, if one base creates an excellent Black History Month series, all bases can link to that site. In effect, the amount of people contributing information to a particular base goes up. In addition, there will be no need for each base to do a unique Black History month article.
- *Space.* Space is no longer a limiting factor to what is published. More detailed information can be offered. Also, information has a longer shelf life. It is not used up and discarded like a newspaper, magazine or news release. Timeless information can be archived and made available always.
- *Timeliness.* Information can be offered to the public minutes after it is completed. It is faster than mailing, faxing and distributing via modem. The one-to-two week lag for information to appear in the base paper no longer exists. The information is available 24 hours a day, 365 days a year. Office hours are no longer a constraint.

- *Distribution.* Information made available on the Web is available worldwide at the same time. Air Force members overseas no longer need to suffer from information time lag.
- *Assured delivery.* Information placed on the Web is available to all persons at the same time. There is no lag due to trickle down and no loss or alteration due to an intermediary's editorial decisions. The power that comes from information is distributed evenly along all socioeconomic levels.
- The self-serve nature of the Web frees public affairs people from routine, unskilled tasks and allows them to concentrate on higher-level skilled tasks.
- *Openness.* The easy availability of information will reflect positively on the Air Force. It is not only a good faith gesture, it keeps the Air Force accountable. Information incorrectly withheld due to poor judgment or ineptitude will be harder to withhold.

Now is the time to act. Implementing the enclosed plan is the first step to making it happen.

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